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EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/488,373

Applicant(s)

MORITA, TORU

Examiner

Devona E. Faulk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/20/2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6 and 13 is/are rejected.
- 7) ☒ Claim(s) 3,4,7,8 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/488,373.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because of the reference to Figure 7 at the end. This should not be in the abstract. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities:

Referring to page 2, line 15 and page 8, line 16, (6) is used to denote on page 2, an “open button” of Figure 2; and on page 8, “a disk release operation switch” of Figure 4. Although two different figures are referenced the element is the same. All other elements were consistently referenced by the same name in both figures. Appropriate correction is required.

Referring to page 6, line 16 under the description of the drawings, there is no Figure 1. Appropriate correction is required.

Referring to page 14, line 16, and “nonvolatile memory” is referenced by 44b. There is no 44b reference in any of the figures. Appropriate correction is required.

Claim Objections

3. Claims 3, 4, 7, 8, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 recites the limitation " provide a clear playback sound " in line 10. The phrase "provide a clear playback sound" is not consistent with the preamble. The claim is unclear. . It is interpreted that "providing a clear playback sound" and "clearly generating a playback sound" are of the same meaning. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. On line 5, " generating by said timer unit a CPU interrupt signal which is controlled; " is not clear.

Claim Rejections - 35 USC § 103

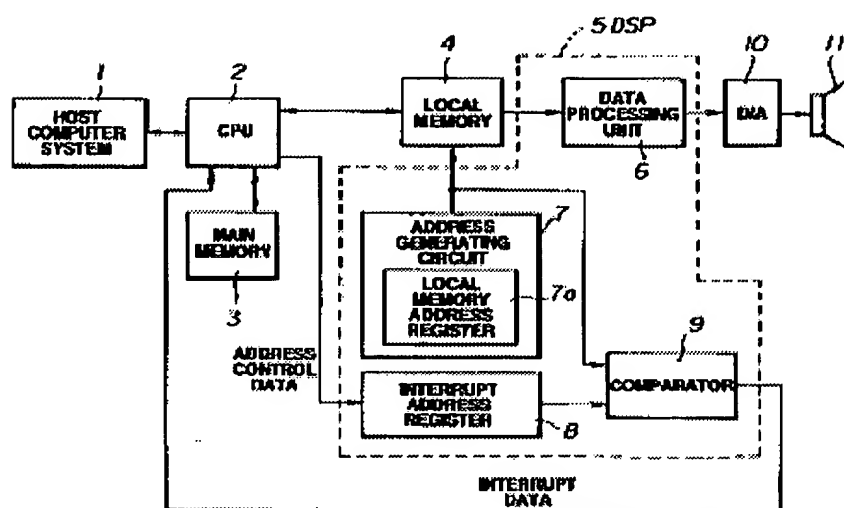
7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuhashi et al. (U.S. Patent 5,787,397).

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Regarding claim 1, Furuhashi discloses a method for generating playback sound in an electronic device through an interrupt information generating apparatus and speech information processing apparatus including CPU (2) and a speaker (11) (See Figure 1 below) ;

**FIG.1**

the CPU (2), which reads on "CPU", controls the addressing means for outputting the specified address information indicating the leading address of the speech information and the interrupt data is supplied to the central processing unit at the playback timing of the desired sound source data. [This reads on "dynamically altering a CPU interrupt signal in accordance with a sound data that is read from a CPU memory"]; a D/A processor, which converts the sound source data into analog signals to generate speech signals, which are outputted to the speaker unit (column 8, line 44), which reads on "emitting to a speaker of the electronic device"; interrupt data is fed to the CPU at the playback timing of the sound source data (Column 9, line 14) , which reads on "sound data obtained in connection with said CPU interrupt signal, wherein the timing between said sound data and the timing of said CPU interrupt signal are made to agree with each other to provide a

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clear playback sound". The interrupt data is interpreted to mean interrupt period or time. An interrupt is a signal to a computer that stops the execution of a running program so that another action can be performed. Interrupts are well known in the art. All CPU's have some mechanism for enabling/disabling interrupt recognition and processing. Interrupts are used to ensure that time-critical items are performed properly without the loss of data. Interrupts can stem from various events such as a button press, timer expiration or completion of data transfer. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use Furuhashi's teaching to develop a method generating playback sound wherein a CPU interrupt is dynamically altered in accordance with sound data read from a CPU memory in order to relieve the load imposed on the CPU.

Regarding Claim 2, Furuhashi discloses a method for generating playback sound in an electronic device through an interrupt information generating apparatus and speech information processing apparatus including :CPU (2) and a speaker (11) (See Figure 1 below) ; the CPU (2), which reads on "CPU", controls the addressing means for outputting the specified address information indicating the leading address of the speech information and the interrupt data is supplied to the central processing unit at the playback timing of the desired sound source data. [This reads on "dynamically altering a CPU interrupt signal in accordance with a sound data that is read from a CPU memory"]; a D/A processor, which converts the sound source data into analog signals to generate speech signals, which are outputted to the speaker unit (column 8, line 44), which reads on "emitting to a speaker of the electronic device"; interrupt data is fed to the CPU at the playback timing of the sound source data (Column 9, line 14), which reads on "sound data obtained in connection with said CPU interrupt signal, wherein the timing between

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said sound data and the timing of said CPU interrupt signal are made to agree with each other to provide a clear playback sound". The interrupt data is interpreted to mean interrupt period or time. It is inherent that an interrupt signal has a period associated with it, so it is interpreted that if the interrupt signal is dynamically altered than so must it's period be dynamically altered.

An interrupt is a signal to a computer that stops the execution of a running program so that another action can be performed. Interrupts are well known in the art. All CPU's have some mechanism for enabling/disabling interrupt recognition and processing. Interrupts are used to ensure that time-critical items are performed properly without the loss of data. Interrupts can stem from various events such as a button press, timer expiration or completion of data transfer. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use Furuhashi's teaching to develop a method generating playback sound wherein a CPU interrupt is dynamically altered in accordance with sound data read from a CPU memory in order to relieve the load imposed on the CPU.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al., (U. S. Patent 5,908,997), in view of Furuhashi et al. (5,787,397). Regarding Claim 5, Arnold discloses a method for clearly generating a clear playback sound, in an electronic device through a music information management system (12 of Figure 1), comprising: a CPU (42), timer (50) and a speaker (136), which read on "CPU", "timer" and "speaker"; a MIDI Audio subsystem that provides the components for sound generation; reading image and

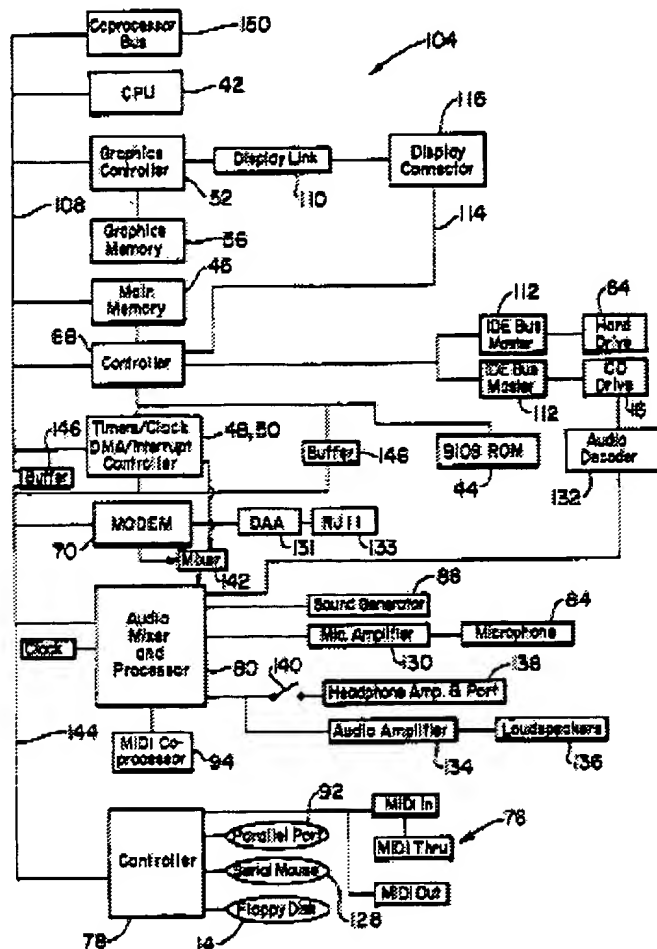


FIG. 3

audio data through the display

subsystem which includes a graphics decoder for generating video images under command from the CPU subsystem and through the Multimedia Audio subsystem includes an audio mixer and processor under control by the CPU (42), column 9, line 43 [This reads on reading image and audio data under CPU control]; and a timer connected to the CPU. Although Arnold teaches on the above-mentioned elements he does not teach dynamically altering the CPU interrupt signal in accordance with read audio data. However, the concept dynamically altering the CPU interrupt signal in accordance with read audio data was well known in the art at the time of filing as taught

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by Furuhashi. As stated above in the above apropos of Claim 1, Furushashi teaches a method of dynamically altering sound a CPU interrupt signal in accordance with read sound data, which reads on "audio data". As stated in the above apropos of Claim 1, interrupts are common in the art. All CPU's have some mechanism for enabling/disabling interrupt recognition and processing. It was known in the art at the time of filing that timers and/or counter can be used to generate a CPU interrupt signal. It is obvious by Furuhashi's Figure 1 that that timer is generating the interrupt signal. Electronic devices that offer visual and audio features are well known in the art. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the music information management system of Arnold the method of reproducing sound of Furushashi in order to have an electronic device that would enable the structure of programs to be simplified, capable of generating better sound and one which would lessen the work load of the main CPU (42) through the claimed method.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furuhashi et al., hereafter Furuhashi, (5,787,397).

Regarding Claim 6, Furuhashi discloses a method for generating playback sound in an electronic device through an interrupt information generating apparatus and speech information processing apparatus which read on "electronic device" including :CPU (2) and a speaker (11) (See Figure 1 below) ; the CPU (2), which reads on "CPU", controls the addressing means for outputting the specified address information indicating the leading address of the speech information and the interrupt data is supplied to the central processing unit at the playback timing of the desired sound source data. [This reads on "dynamically altering a CPU interrupt signal in accordance with a sound data that is read from a CPU memory"]; a D/A processor,

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which converts the sound source data into analog signals to generate speech signals, which read on “a D/A converter that changes said sound data to an analog signal”; which are outputted to the speaker unit (column 8, line 44), which reads on “emitting to a speaker of the electronic device”; interrupt data is fed to the CPU at the playback timing of the sound source data (Column 9, line 14), which reads on “sound data obtained in connection with said CPU interrupt signal, wherein the timing between said sound data and the timing of said CPU interrupt signal are made to agree with each other to provide a clear playback sound”. The interrupt data is interpreted to mean interrupt period or time. As stated above in apropos Claim 5, it was known in the art at the time of filing that timers and/or counter can be used to generate a CPU interrupt signal. It is obvious by Furuhashi’s Figure 1 that that timer is generating the interrupt signal. Thus it would have been obvious to one of ordinary skill in the art at the time of invention to use Furuhashi’s electronic device and method of generating playback sound wherein a CPU interrupt is dynamically altered in accordance with sound data read from a CPU memory in order to have an electronic device that produces better sound, and to relieve the load imposed on the CPU.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takenouchi et al., (U.S. Patent 5,428,528), in view of Furuhashi et al. (U.S. Patent 5,787,397).

Regarding Claim 13, Takenouchi discloses an entertainment system through a communications processing system, which reads on “entertainment system including: one parent communication, which reads on “parent machine”, and at least one child communication unit, which reads on “portable electronic device”; an interface for making electrical connection to the parent machine. In column 5, line 33, it states that the operation of the receiving is performed by

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the microcomputer included in the child game machines. In column 5, line 30 it states that the process of transmission is performed by the microcomputer included in the parent game machine. [This reads on “interface for making electrical connection to the parent machine”.]

Although Takenouchi teaches an entertainment system with a parent and child machine, he does not teach a CPU, timer that generates an CPU interrupt signal, a CPU specifying a sound by the timing of the interrupt signal and a speaker that emits sound corresponding to said analog data.

Furuhashi discloses a method for generating playback sound in an electronic device through an interrupt information generating apparatus and speech information processing apparatus which

read on “electronic device” including : CPU (2) and a speaker (11) (See Figure 1 below) ; the

CPU (2), which reads on “CPU”, controls the addressing means for outputting the specified

address information indicating the leading address of the speech information and the interrupt

data is supplied to the central processing unit at the playback timing of the desired sound source

data. [This reads on “dynamically altering a CPU interrupt signal in accordance with a sound

data that is read from a CPU memory”]; a D/A processor, which converts the sound source data

into analog signals to generate speech signals, which read on “a D/A converter that changes said

sound data to an analog signal”; which are outputted to the speaker unit (column 8, line 44),

which reads on “emitting to a speaker of the electronic device”; interrupt data is fed to the CPU

at the playback timing of the sound source data (Column 9, line 14), which reads on “sound

data obtained in connection with said CPU interrupt signal, wherein the timing between said

sound data and the timing of said CPU interrupt signal are made to agree with each other to

provide a clear playback sound”. It is obvious by Furuhashi’s Figure 1 that that timer is

generating the interrupt signal.

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Entertainment systems, particularly games, are popular, especially those that have great sound effects. An entertainment system, having portable "child" machines or devices would be extremely popular because people would be able to take with them their favorite game. Since this would lead to more game-playing time it is crucial that the CPU processing is such that there is less load on the CPU. Thus it would have obvious to one of ordinary skill in the art at the time of the invention to modify Takenouchi's child machine or portable device to incorporate the apparatus and method of Furushashi so that the portable device would have better sound reproducing capabilities, less susceptible to failing or crashing due to an overload of data.

Allowable Subject Matter

12. The following is a statement of reason for the indication of allowable subject matter: Regarding Claim 9, Furushashi and Miwa meet all elements of the claim with the exception of a timer unit generating an interrupt signal using the down-counter and an electronic means causing the CPU to control a down-counter based on the period of sound data. Hanson (U.S. Patent 5,226,046) discloses a method and apparatus for synchronizing digital data streams that includes an up/down counter that has a control signal generated by the CPU (column 12, line 18) but it is not based on the period of sound data. As such, the prior art fails to anticipate or make obvious a timer generating an interrupt signal using a down-counter or electronic means causing the CPU to control a down counter based on the period of sound data.

13. Claims 10 and 12 are allowable due to dependency on Claim 9.

14. Claim 11 is allowable due to dependency on Claim 10.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 703-305-4359. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Isen can be reached on 703-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

DF
July 28, 2003


MINSUN OH HARVEY
PRIMARY EXAMINER

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